## APPENDIX A

### THIRD SUPPLEMENTAL FINAL REGULATORY FLEXIBILITY ANALYSIS
### (*Third Memorandum Opinion and Order)*

As required by the Regulatory Flexibility Act ("RFA"),[1] an Initial Regulatory Flexibility Analysis ("IRFA") was incorporated in Appendix A of the *Second Notice of Proposed Rulemaking* ("*Second Notice*") issued in this proceeding.[2] The Commission sought written public comments on the proposals in the *Second Notice*, including comments on the IRFA. No comments were filed in direct response to the IRFA. Subsequently, a Final Regulatory Flexibility Analysis ("FRFA") was incorporated in Appendix A of the *First Report and Order* issued in this proceeding.[3] A Supplemental Final Regulatory Flexibility Analysis ("First SFRFA") was incorporated in Appendix A of the *Memorandum Opinion and Order on Reconsideration* ("*First MO&O*") issued in this proceeding.[4] A Second Supplemental Final Regulatory Flexibility Analysis ("Second SFRFA") was incorporated in Appendix A of the *Second Memorandum Opinion and Order* ("*Second MO&O*") issued in this proceeding.[5] The Third Supplemental Final Regulatory Flexibility Analysis ("Third SFRFA") contained in this *Third Memorandum Opinion and Order* ("*Third MO&O*") supplements the information contained in the FRFA, First SFRFA, and Second SFRFA and is limited to matters raised on reconsideration or clarification with regard to the *First Report and Order* and addressed in this *Third MO&O.* This Third SFRFA conforms to the RFA.[6]

### I. Need for, and Objectives of, the *Third MO&O*

1. In this *Third MO&O*, we address the multiple Petitions for Reconsideration and/or Clarification filed in connection with the *First Report and Order* in this docket that established a band plan and adopted service rules in the newly-reallocated public safety spectrum at 764-776 MHz and 794-806 MHz ("the 700 MHz band"). This *Third MO&O* presents our decisions in response to those various portions of the petitions that address the:

a. band plan for the 700 MHz band, and
b. low power narrowband devices for on-scene communication.

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[1] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

[2] *See* Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86, *Second Notice of Proposed Rulemaking*, 12 FCC Rcd. 17706, 17809 (1997).

[3] *See* Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86, *First Report and Order and Third Notice of Proposed Rulemaking*, 14 FCC Rcd. 152, 249 (1998) ("*First Report and Order*").

[4] *See* Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86, *Memorandum Opinion and Order on Reconsideration*, 14 FCC Rcd. 8059, 8070 (1999) ("*First MO&O*").

[5] *See* Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86, *Second Memorandum Opinion and Order*, FCC 00-264 (rel. August 1, 2000) ("*Second MO&O*").

[6] *See* 5 U.S.C. § 604.

2. In the *Third MO&O*, we revise the band plan adopted in the *First Report and Order* to reposition the location of the narrowband and wideband channel groups for the general use, interoperability, and reserve spectrum. We also modify the adopted narrowband general use channel plan by designating forty-eight narrowband channels for low power use for on-scene communication. These clarifications are needed in order to promote efficient spectrum usage and flexibility.

## II. Summary of Significant Issues Raised by Public Comments in Response to the FRFA.

3. No comments were filed in direct response to the FRFA.

## III. Description and Estimate of Numbers of Small Entities Affected by Rule Amendment

4. The RFA directs agencies to provide a description of, and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.[7] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[8] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[9] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration ("SBA").[10] A small organization is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."[11] Nationwide, as of 1992, there were approximately 275,801 small organizations.[12] "Small governmental jurisdiction" generally means "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than 50,000."[13] As of 1992, there were approximately 85,006 such jurisdictions in the United States.[14] This number includes 38,978 counties, cities, and towns; of these, 37,566, or ninety-six percent, have populations of fewer than 50,000.[15] The Census Bureau estimates that this ratio is approximately accurate for all governmental entities. Thus, of the 85,006 governmental entities, we estimate that 81,600 (ninety-one percent) are small entities.

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[7] 5 U.S.C. § 603(b)(3).

[8] *See* 5 U.S.C. § 601(6).

[9] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." 5 U.S.C. § 601(3).

[10] Small Business Act, 15 U.S.C. § 632 (1996).

[11] 5 U.S.C. § 601(4).

[12] 1992 Economic Census, U.S. Bureau of the Census, Table 6 (special tabulation of data under contract to Office of Advocacy of the SBA).

[13] 5 U.S.C. § 601(5).

[14] U.S. Dept. of Commerce, Bureau of the Census, "1992 Census of Governments."

[15] *Id.*

5. *Public Safety Radio Pool Licensees.* As a general matter, Public Safety Radio Pool licensees include police, fire, local government, forestry conservation, highway maintenance, and emergency medical services.[16] Spectrum in the 700 MHz band for public safety services is governed by 47 U.S.C. § 337; there are approximately 127,540 licensees within these services. Non-Federal governmental entities as well as private businesses are licensees for these services. All governmental entities with populations of less than 50,000 fall within the definition of a small entity.[17] The rule changes adopted in this *Third MO&O* could affect public safety entities who wished to utilize frequencies in the low power pool for uses such as on-scene firefighting communications and various other short-range communications systems which would be developed for 700 MHz band equipment.

6. *Radio and Television Equipment Manufacturers.* We anticipate that at least six radio equipment manufacturers will be affected by our decisions in this proceeding. According to the SBA's regulations, a radio and television broadcasting and communications equipment manufacturer must have 750 or fewer employees in order to qualify as a small business concern.[18] Census Bureau data indicate that there are 858 U.S. firms that manufacture radio and television broadcasting and communications equipment, and that 778 of these firms have fewer than 750 employees and would therefore be classified as small entities.[19]

7. *Television Stations.* This proceeding will affect full service TV station licensees (Channels 60-69), TV translator facilities, and low power TV ("LPTV") stations. The SBA defines a TV broadcasting station that has no more than $10.5 million in annual receipts as a small business.[20] TV broadcasting stations consist of establishments primarily engaged in broadcasting visual programs by TV to the public, except cable and other pay TV services.[21] Included in this industry are commercial,

[16] *See* Subparts A and B of Part 90 of the Commission's Rules, 47 C.F.R. §§ 90.1 - 90.22. Police licensees include 26,608 licensees that serve state, county, and municipal enforcement through telephony (voice), telegraphy (code) and teletype and facsimile (printed material). Fire licensees include 22,677 licensees comprised of private volunteer or professional fire companies as well as units under governmental control. Public Safety Radio Pool licensees also include 40,512 licensees that are state, county, or municipal entities that use radio for official purposes. There are also 7,325 forestry service licensees comprised of licensees from state departments of conservation and private forest organizations who set up communications networks among fire lookout towers and ground crews. The 9,480 state and local governments are highway maintenance licensees that provide emergency and routine communications to aid other public safety services to keep main roads safe for vehicular traffic. Emergency medical licensees (1,460) use these channels for emergency medical service communications related to the delivery of emergency medical treatment. Another 19,478 licensees include medical services, rescue organizations, veterinarians, handicapped persons, disaster relief organizations, school buses, beach patrols, establishments in isolated areas, communications standby facilities, and emergency repair of public communications facilities.

[17] 5 U.S.C. § 601(5), *see supra* ¶ 4.

[18] 13 C.F.R. § 121.201, Standard Industrial Code (SIC) 3663.

[19] U.S. Dept. of Commerce, *1992 Census of Transportation, Communications and Utilities* (issued May 1995), SIC 3663.

[20] 13 C.F.R. § 121.201, SIC 4833 (1996).

[21] Economics and Statistics Administration, Bureau of Census, U.S. Department of Commerce, 1992 Census of Transportation, Communications and Utilities, Establishment and Firm Size, Series UC92-S-1, Appendix A-9 (1995) (ESA 1992 Census).

religious, educational, and other TV stations.[22] Also included are establishments primarily engaged in TV broadcasting and which produce taped TV program materials.[23] Separate establishments primarily engaged in producing taped TV program materials are classified under another SIC number.[24] There were 1,509 TV stations operating in the Nation in 1992.[25] That number has remained fairly constant as indicated by the approximately 1,551 operating TV broadcasting stations in the Nation as of February 28, 1997.[26] For 1992[27] the number of TV stations that produced less than $10.0 million in revenue was 1,155 establishments, or approximately 77 percent of the 1,509 establishments.[28] There are currently 95 full service analog TV stations, either operating or with approved construction permits on channels 60-69.[29]

8. In the *DTV Proceeding*, we adopted a Digital Television ("DTV") Table which provides only 15 allotments for digital television stations on channels 60-69 in the continental United States.[30] There are seven DTV allotments in channels 60-69 outside the continental United States.[31] Thus, the rules will affect approximately 117 TV stations; approximately 90 of those stations may be considered small businesses.[32] These estimates may overstate the number of small entities since the revenue figures on which they are based do not include or aggregate revenues from non-TV affiliated companies. We recognize that the rules may also impact minority-owned and women-owned stations, some of which may be small entities. In 1995, minorities owned and controlled 37 (3.0 percent) of 1,221 commercial TV

[22] *See* Executive Office of the President, Office of Management and Budget, Standard Industrial Classification Manual (1987), at 283, which describes TV Broadcasting Station (SIC 4833) as:

> Establishments primarily engaged in broadcasting visual programs by television to the public, except cable and other pay television services. Included in this industry are commercial, religious, educational and other television stations. Also included here are establishments primarily engaged in television broadcasting and which produce taped television program materials.

[23] ESA 1992 Census at Appendix A-9.

[24] ESA 1992 Census at Appendix A-9; SIC 7812 (Motion Picture and Video Tape Production); SIC 7922 (Theatrical Producers and Miscellaneous Theatrical Services (producers of live radio and TV programs)).

[25] *Allocation Report and Order*, 12 FCC Rcd at 22953 (1998), at Appendix C; ESA 1992 Census at Appendix A-9.

[26] *Allocation Report and Order*, 12 FCC Rcd 22953 (1998) at Appendix C.

[27] A census for communications establishments is performed every five years ending with a "2" or "7." *See* ESA 1992 Census at III.

[28] The amount of $10 million was used to estimate the number of small business establishments because the relevant Census categories stopped at $9,999,999 and began at $10,000,000. No category for $10.5 million existed. Thus, the number is as accurate as is possible to calculate with the available information.

[29] *See Allocation Notice*, 12 FCC Rcd at 14142.

[30] *See DTV Proceeding*, 12 FCC Rcd 14588.

[31] *See Allocation Notice* 12 FCC Rcd 14142, n.5.

[32] We use the 77 percent figure of TV stations operating at less than $10 million for 1992 and apply it to the 117 TV stations to arrive at 90 stations categorized as small businesses.

stations in the United States.[33] According to the U.S. Bureau of the Census, in 1987 women owned and controlled 27 (1.9 percent) of 1,342 commercial and non-commercial TV stations in the United States.[34]

9. There are currently 4,977 TV translator stations and 1,952 LPTV stations.[35] Approximately 1,309 low power TV and TV translator stations are on channels 60-69[36] which could be affected by policies in this proceeding. The Commission does not collect financial information on any broadcast facility and the Department of Commerce does not collect financial information on these broadcast facilities. We will assume for present purposes, however, that most of these broadcast facilities, including LPTV stations, could be classified as small businesses. As indicated earlier, approximately 77 percent of TV stations are designated under this analysis as potentially small businesses.

## IV. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

10. The only compliance requirement that is newly imposed by this Third MO&O is that we now require applicants for channels which where once reserved and are now available for low power licensing to go through the regional planning committee (RPC) process, including frequency coordination. RPCs will be responsible for determining the most appropriate low power application(s) on these channels and the frequency coordinators will be responsible for providing appropriate interference protection.

## V. Steps Taken To Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

11. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.[37]

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[33] *Minority Commercial Broadcast Ownership in the United States*, U.S. Dep't of Commerce, National Telecommunications and Information Administration, The Minority Telecommunications Development Program ("MTDP") (Apr. 1996). MTDP considers minority ownership as ownership of more than 50 percent of a broadcast corporation's stock, voting control in a broadcast partnership, or ownership of a broadcasting property as an individual proprietor. The minority groups included in this report are Black, Hispanic, Asian, and Native American.

[34] *See* Comments of American Women in Radio and TV, Inc. in MM Docket No. 94-149 and MM Docket No. 91-140 at 4 n.4 (filed May 17, 1995) (citing 1987 Economic Censuses, *Women-Owned Business*, WB87-1, U.S. Dep't of Commerce, Bureau of the Census, August 1990 (based on 1987 Census)). After the 1987 Census report, the Census Bureau did not provide data by particular communications services (four-digit SIC Code), but rather by the general two-digit SIC Code for communications (#48). Consequently, since 1987, the Census Bureau has not updated data on ownership of broadcast facilities by women, nor does the Commission collect such data. However, we sought comment on whether the Annual Ownership Report Form 323 should be amended to include information on the gender and race of broadcast license owners. Policies and Rules Regarding Minority and Female Ownership of Mass Media Facilities, *Notice of Proposed Rule Making*, 10 FCC Rcd 2788, 2797 (1995).

[35] *See Allocation Report and Order*, 12 FCC Rcd 22986 at Appendix C.

[36] *See Allocation Notice* at 12 FCC Rcd 14142, n.3.

[37] *See* 5 U.S.C. § 603.

12. *Channel plans* We appropriately decided to modify the narrowband and wideband interoperability channeling plans to permit the use of efficient transmitter combiners for common antennas. This revision lowers costs for public safety entities. Thus, these rule changes will benefit all public safety entities, including small entities. On the other hand, denying these petitions was not a viable alternative because maintaining the channel plan adopted in the *First Report and Order* would have increased costs for public safety entities, including small entities, by precluding the use of combiners. Additionally, our decision grouping the reserve spectrum into four segments of 1.35 MHz each located between the narrowband and wideband segments offers improved flexibility to accommodate future requirements that are unforeseen at this time. These rule changes will have future benefits for all public safety entities, including small entities.

13. *Low Power Channels* Our decision allocating channels nationwide for low power mobile operations offers improved flexibility for the public safety community to meet specialized, on-scene communication requirements. Thus, these rule changes will benefit all public safety entities, including small entities. Moreover, designating the twenty-four pairs as low power channels nationwide will lower costs for equipment manufacturers and public safety users, including small entities, as will our decision to exempt these low power devices from the interoperability capability, digital modulation, and trunking requirements.[38] The regional planning and frequency coordination process that we apply to the "regional" channels and the licensing process that we apply to all of these channels are necessary to minimize interference. We minimized burdens by exempting the nationwide, itinerant channels from regional planning and frequency coordination. This exemption benefits all public safety entities including small entities, resulting in reduced costs and improved operational flexibility to meet on-scene communication requirements. We also note that about half of the new low power channels were previously general use channels and thus already subject to regional planning, frequency coordination, and licensing under the *First Report and Order*. Other alternatives were not changing the rule and/or requiring regional planning and frequency coordination for all of the low power channels. Our decision reflects a balance between the need to minimize interference and the need for operational flexibility.[39]

14. By establishing this low power designation, we ease the economic burden, of funding communications systems in the new 700 MHz band, on public safety agencies, including small entities, that forego purchasing more expensive high power equipment when less expensive low-power equipment meets their short distance communications needs. We also ease the burden on equipment manufacturers, including small entities, because this low power designation provides flexibility to produce high-power equipment, low-power equipment, or both. Moreover, exempting this low power equipment from the interoperability capability requirement will quicken the type certification process for manufacturers of this low power equipment.

**Report to Congress:** The Commission will send a copy of the *Third Report and Order,* including this Final Regulatory Flexibility Analysis, in a report to be sent to Congress pursuant to SBREFA.[40] A copy of the *Third Report and Order* including the Final Regulatory Flexibility Analysis

[38] In the *Third MO&O*, we amend our Rules to exempt mobiles and portables that operate exclusively on these low power frequencies from the digital modulation requirement of Section 90.535, the trunking requirement of Section 90.537, and the interoperability channel capability requirement of Section 90.547 of our Rules. In addition, we are revising Section 90.547 to more clearly reflect the interoperability channel capability requirement that we adopted in the *First Report and Order*.

[39] *See Third Report and Order*, para. 38, *supra*.

[40] *See* 5 U.S.C. § 801(a)(1)(A).

(or summaries thereof) will also be published in the Federal Register.[41] In addition, the Commission will send a copy of the *Third Report and Order*, including the Final Regulatory Flexibility Analysis to the Chief Counsel for Advocacy of the SBA.

[41] *See 5* U.S.C. § 604(b).

## APPENDIX B

### FINAL REGULATORY FLEXIBILITY ANALYSIS
### (*Third Report and Order*)

As required by the Regulatory Flexibility Act (RFA),[1] Initial Regulatory Flexibility Analysis (collectively referred to as "IRFAs") were incorporated in the *Notice of Proposed Rule Making* ("*Public Safety Notice*"), the *Second Notice of Proposed Rule Making* ("*Second Notice*") and the *Third Notice of Proposed Rulemaking* (*Third Notice*) in Docket 96-86.[2] The Commission sought written public comments on the proposals in the *Public Safety Notice, Second Notice*, and *Third Notice*, including comments on the IRFAs. No comments on the IRFAs were received. This Final Regulatory Flexibility Analysis ("FRFA") conforms to the RFA.[3]

### I. Need for, and Objectives of, the *Third Report and Order*

1. In the *Third Report and Order* portion of this combined item, we address technical, designation and licensing issues for the spectrum that we reserved in the *First Report and Order* to be "subject to the *Third Notice.*"[4] In addition, we adopt technical criteria for 700 MHz band operations to protect satellite-based global navigation systems ("GNSS") from harmful interference and establish measures to promote interoperability on public safety channels below 512 MHz. These are crucial developmental steps towards the flexible regulatory framework needed to meet vital current and future public safety communications needs.

### II. Summary of Significant Issues Raised by Public Comments in Response to the IRFAs.

2. Based on the comments submitted generally by small entities, the Commission found that the rules we proposed to adopt in this proceeding may have a significant impact on a substantial number of small businesses. Therefore, the IRFAs solicited comments on alternatives to our proposed rules that would minimize the impact on small entities consistent with the objectives of this proceeding. No comments were submitted directly in response to the IRFAs; however, as described in Section V, we have taken into account all general comments received which addressed the impact on small entities.

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[1] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

[2] The Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket 96-86, *Notice of Proposed Rule Making*, 11 FCC Rcd 12,460 (1996) (*Public Safety Notice*); The Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010 and Establishment of Rules and Requirements For Priority Access Service, WT Docket 96-86, *Second Notice of Proposed Rule Making*, 12 FCC Rcd 17,706 (1997) (*Second Notice*), The Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010 and Establishment of Rules and Requirements For Priority Access Service, WT Docket 96-86, *First Report and Order and Third Notice of Proposed Rulemaking*, 14 FCC Rcd. 152 (1998) (*First Report and Order* or *Third Notice*, as applicable).

[3] *See* 5 U.S.C. § 604.

[4] *See First Report and Order*, 14 FCC Rcd. at 175-176 ¶ 43.

## III. Description and Estimate of the Number of Small Entities to Which Rules Will Apply

3. The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[5] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[6] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.[7] A small organization is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."[8] Nationwide, as of 1992, there were approximately 275,801 small organizations.[9] "Small governmental jurisdiction" generally means "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than 50,000."[10] As of 1992, there were approximately 85,006 such jurisdictions in the United States.[11] This number includes 38,978 counties, cities, and towns; of these, 37,566, or ninety-six percent, have populations of fewer than 50,000.[12] The Census Bureau estimates that this ratio is approximately accurate for all governmental entities. Thus, of the 85,006 governmental entities, we estimate that 81,600 (ninety-one percent) are small entities.

4. *Public Safety Radio Pool Licensees.* As a general matter, Public Safety Radio Pool licensees include police, fire, local government, forestry conservation, highway maintenance, and emergency medical services.[13] Spectrum in the 700 MHz band for public safety services is governed by 47 U.S.C.

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[5] *See* 5 U.S.C. § 601(6).

[6] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." 5 U.S.C. § 601(3).

[7] Small Business Act, 15 U.S.C. § 632 (1996).

[8] 5 U.S.C. § 601(4).

[9] 1992 Economic Census, U.S. Bureau of the Census, Table 6 (special tabulation of data under contract to Office of Advocacy of the SBA).

[10] 5 U.S.C. § 601(5).

[11] U.S. Dept. of Commerce, Bureau of the Census, "1992 Census of Governments."

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[13] *See* Subparts A and B of Part 90 of the Commission's Rules, 47 C.F.R. §§ 90.1 - 90.22. Police licensees include 26,608 licensees that serve state, county, and municipal enforcement through telephony (voice), telegraphy (code) and teletype and facsimile (printed material). Fire licensees include 22,677 licensees comprised of private volunteer or professional fire companies as well as units under governmental control. Public Safety Radio Pool licensees also include 40,512 licensees that are state, county, or municipal entities that use radio for official purposes. There are also 7,325 forestry service licensees comprised of licensees from state departments of conservation and private forest organizations who set up communications networks among fire lookout towers and ground crews. The 9,480 state and local governments are highway maintenance licensees that provide emergency and routine communications to aid other public safety services to keep main roads safe for vehicular traffic. Emergency medical licensees (1,460) use these channels for emergency medical service communications related to the delivery of emergency medical treatment. Another 19,478 licensees include medical services, rescue organizations, veterinarians, handicapped persons, disaster

§ 337; there are approximately 127,540 licensees within these services. Non-Federal governmental entities as well as private businesses are licensees for these services. All governmental entities with populations of less than 50,000 fall within the definition of a small entity.[14] The rule changes adopted in this *Third MO&O* could affect public safety entities who wished to utilize frequencies in the low power pool for uses such as on-scene firefighting communications and various other short-range communications systems which would be developed for 700 MHz band equipment.

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relief organizations, school buses, beach patrols, establishments in isolated areas, communications standby facilities, and emergency repair of public communications facilities.

[14] 5 U.S.C. § 601(5), *see supra* para. 3.

[15] 13 C.F.R. § 121.201, Standard Industrial Code (SIC) 3663.

[16] U.S. Dept. of Commerce, *1992 Census of Transportation, Communications and Utilities* (issued May 1995), SIC 3663.

[17] 13 C.F.R. § 121.201, SIC 4833 (1996).

[18] Economics and Statistics Administration, Bureau of Census, U.S. Department of Commerce, 1992 Census of Transportation, Communications and Utilities, Establishment and Firm Size, Series UC92-S-1, Appendix A-9 (1995) (ESA 1992 Census).

[19] *See* Executive Office of the President, Office of Management and Budget, Standard Industrial Classification Manual (1987), at 283, which describes TV Broadcasting Station (SIC 4833) as:

> Establishments primarily engaged in broadcasting visual programs by television to the public, except cable and other pay television services. Included in this industry are commercial, religious, educational and other television stations. Also included here are establishments primarily engaged in television broadcasting and which produce taped television program materials.

[20] ESA 1992 Census at Appendix A-9.

[21] ESA 1992 Census at Appendix A-9; SIC 7812 (Motion Picture and Video Tape Production); SIC 7922 (Theatrical Producers and Miscellaneous Theatrical Services (producers of live radio and TV programs)).

7. There were 1,509 TV stations operating in the Nation in 1992.[22] That number has remained fairly constant as indicated by the approximately 1,551 operating TV broadcasting stations in the Nation as of February 28, 1997.[23] For 1992[24] the number of TV stations that produced less than $10.0 million in revenue was 1,155 establishments, or approximately 77 percent of the 1,509 establishments.[25] There are currently 95 full service analog TV stations, either operating or with approved construction permits on channels 60-69.[26] In the *DTV Proceeding*, we adopted a Digital Television ("DTV") Table which provides only 15 allotments for DTV stations on channels 60-69 in the continental United States.[27] There are seven DTV allotments in channels 60-69 outside the continental United States.[28] Thus, the rules will affect approximately 117 TV stations; approximately 90 of those stations may be considered small businesses.[29] These estimates may overstate the number of small entities since the revenue figures on which they are based do not include or aggregate revenues from non-TV affiliated companies. We recognize that the rules may also impact minority-owned and women-owned stations, some of which may be small entities. In 1995, minorities owned and controlled 37 (3.0 percent) of 1,221 commercial TV stations in the United States.[30] According to the U.S. Bureau of the Census, in 1987 women owned and controlled 27 (1.9 percent) of 1,342 commercial and non-commercial TV stations in the United States.[31]

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[22] *Allocation Report and Order*, 12 FCC Rcd at 22953 (1998), at Appendix C; ESA 1992 Census at Appendix A-9.

[23] *Allocation Report and Order*, 12 FCC Rcd 22953 (1998) at Appendix C.

[24] A census for communications establishments is performed every five years ending with a "2" or "7." *See* ESA 1992 Census at III.

[25] The amount of $10 million was used to estimate the number of small business establishments because the relevant Census categories stopped at $9,999,999 and began at $10,000,000. No category for $10.5 million existed. Thus, the number is as accurate as is possible to calculate with the available information.

[26] *See Allocation Notice*, 12 FCC Rcd at 14142.

[27] *See DTV Proceeding,* 12 FCC Rcd 14588.

[28] *See Allocation Notice* 12 FCC Rcd 14142, n.5.

[29] We use the 77 percent figure of TV stations operating at less than $10 million for 1992 and apply it to the 117 TV stations to arrive at 90 stations categorized as small businesses.

[30] *Minority Commercial Broadcast Ownership in the United States*, U.S. Dep't of Commerce, National Telecommunications and Information Administration, The Minority Telecommunications Development Program ("MTDP") (Apr. 1996). MTDP considers minority ownership as ownership of more than 50 percent of a broadcast corporation's stock, voting control in a broadcast partnership, or ownership of a broadcasting property as an individual proprietor. The minority groups included in this report are Black, Hispanic, Asian, and Native American.

[31] *See* Comments of American Women in Radio and TV, Inc. in MM Docket No. 94-149 and MM Docket No. 91-140 at 4 n.4 (filed May 17, 1995) (citing 1987 Economic Censuses, *Women-Owned Business*, WB87-1, U.S. Dep't of Commerce, Bureau of the Census, August 1990 (based on 1987 Census)). After the 1987 Census report, the Census Bureau did not provide data by particular communications services (four-digit SIC Code), but rather by the general two-digit SIC Code for communications (#48). Consequently, since 1987, the Census Bureau has not updated data on ownership of broadcast facilities by women, nor does the Commission collect such data. However, we sought comment on whether the Annual Ownership Report Form 323 should be amended to include information on the gender and race of broadcast license owners. Policies and Rules Regarding Minority and Female Ownership of Mass Media Facilities, *Notice of Proposed Rule Making*, 10 FCC Rcd 2788, 2797 (1995).

8. There are currently 4,977 TV translator stations and 1,952 LPTV stations.[32] Approximately 1,309 low power TV and TV translator stations are on channels 60-69[33] which could be affected by policies +in this proceeding. The Commission does not collect financial information of any broadcast facility and the Department of Commerce does not collect financial information on these broadcast facilities. We will assume for present purposes, however, that most of these broadcast facilities, including LPTV stations, could be classified as small businesses. As indicated earlier, approximately 77 percent of TV stations are designated under this analysis as potentially small businesses. Given this, LPTV and TV translator stations would not likely have revenues that exceed the SBA maximum to be designated as small businesses.

## IV. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

9. This *Third Report and Order* adopts some rules that will entail additional compliance requirements. These three additional requirements may have an effect on small entities. First, we adopt additional technical criteria for 700 MHz band operations. These new requirements are enacted in order to protect satellite-based global navigation systems from harmful interference.[34] Although this requirement may result in increases in manufacturing costs, including for small manufacturing entities, and may result in higher equipment costs, including for small entities, this modification is essential due to safety concerns related to GNSS operations. Second, we establish measures to promote interoperability on public safety channels below 512 MHz. After January 1, 2005, applications for equipment certification will only be granted for mobile and portable transmitters operating on public safety frequencies in the 150-174 MHz and/or 450-470 MHz bands that are capable of operating on at least one nationwide public safety interoperability channel designated in the band(s) in which the equipment operates. Although this requirement may result in increases in manufacturing costs, including for small manufacturing entities, and may result in higher equipment costs, including for small entities, this modification is essential to improve interoperability capabilities in existing public safety bands for public safety entities, including small entities, that operate in these bands. Lastly, we also require applicants for interoperability channels designated in the 156-162 MHz band (in thirty-three inland VHF public coast areas (VPC)) to complete the frequency coordination process. This process requires applicants to pay fees to frequency coordinators. These fees are generally based on the number of sites, frequencies, and complexity of the coordination process. The adoption of these rules is crucial in order to minimize the potential for interference among the varied users of these channels.

## V. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

10. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.[35]

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[32] *See Allocation Report and Order*, 12 FCC Rcd 22986 at Appendix C.

[33] *See Allocation Notice* at 12 FCC Rcd 14142, n.3.

[34] *See Third Report and Order*, para. 78-81 , *supra.*

[35] *See* 5 U.S.C. § 603.

11. *State License* We designate 2.4 MHz of the 700 MHz band for licensing directly to each state. The rules we adopt will preclude all non-state entities from being licensed for the designated state license frequencies. Most commenters agreed that licensing states for this amount of spectrum (for state agency use) is reasonable.[36] We also include provisions to ensure that this spectrum will become available for "general use" if a given state either (1) declines to apply for a state license or (2) fails to provide or be prepared to provide "substantial service" by certain benchmark dates. Additionally, we amend Section 90.179 to allow states to share the use of the 2.4 MHz of spectrum with local and other public safety entities, which removes an impediment to small entities accessing this spectrum under sharing agreements with states. We considered a variety of alternative approaches for the use and licensing of the reserve spectrum. We declined to adopt an alternative "State Licensing" approach under which states – rather than regional planning committees – would manage state, local, and Federal use of all or most of the 8.8 MHz of spectrum reserved subject to the *Third Notice*. While there were no comments specifically responding to the IRFAs, we considered numerous comments that raised the concern that licensing states for the entire amount would designate the spectrum in a manner deleterious to small entities. Accordingly, we designated an appropriate amount of spectrum for state use instead of designating all of the reserve spectrum to manage. We also believe our decision to allocate the same 2.4 MHz nationwide will benefit small entities because they will not face the possibility of interference on a variety of frequencies from their parent state as well as from adjoining states.

12. *GNSS Protection Criteria* The technical solutions we adopt to protect certain global navigation satellite systems ("GNSS") will impact all manufacturers of equipment that operates in the 700 MHz public safety band. This includes even small manufacturing entities. However, as discussed in the *Third Report and Order*,[37] these limits are necessary to protect GNSS operations, including Global Orbiting Navigation Satellite Systems and Global Positioning System in accordance with international requirements. Moreover, Congress directed the Commission to "protect the integrity of the [GPS] frequency spectrum against interference and disruption."[38] Nevertheless, we have attempted to minimize, to the extent possible, the effect of these additional technical requirements.

13. *Interoperability below 512 MHz* We establish measures to promote interoperability on public safety channels below 512 MHz by designating specific channels in each band for nationwide interoperability purposes We did this because the record demonstrated the need for improved interoperability capabilities below 512 MHz. This designation requires that existing licensees on these channels operate on a secondary basis to interoperability communication. In order to minimize the impact of these rules, we "grandfathered" these licensees on a secondary basis only to interoperability communication rather than ordering them to vacate the channels or use them exclusively for interoperability purposes. We also provide these licensees a transition period, until January 1, 2005. We selected the "least licensed channels" in each band to minimize the economic impact arising from the need to designate interoperability channels in these existing public safety bands.[39] Additionally, after January 1, 2005, applications for equipment certification will only be granted for mobile and portable transmitters operating on public safety frequencies in these bands that are capable of operating on at least one nationwide public safety interoperability channel designated in the band(s) in which the equipment operates. We provide a similar transition period for equipment manufacturers in order to minimize the

[36] *See Third Report and Order*, paras. 48-58, *supra*.

[37] *See Third Report and Order*, paras. 75-81, *supra*.

[38] Defense FY99 Appropriations Conference Report and in the Commercial Space Act of 1998, H.R. 105-746, Defense FY99 Appropriations Conference Report; H.R. 1702 Commercial Space Act of 1998.

[39] *See id.*, para. 88, note 281.

impact of these rules. This transition period will allow small manufacturing entities, in particular, an opportunity to plan for this new requirement. The alternative of not adopting this interoperability capability requirement was not acceptable because of the need to improve public safety interoperability below 512 MHz. Lastly, we also require applicants for interoperability channels designated in the 156-162 MHz band (in thirty-three inland VHF public coast areas (VPC)) to complete the frequency coordination and licensing process. We briefly considered the alternative of not requiring frequency coordination for these channels. This was unacceptable because of the potential for interference among the varied users of these channels.

14. As discussed in the *Third Report and Order*, we note that one reason for establishing measures to promote interoperability below 512 MHz is to assist public safety entities, including small entities, that cannot afford to or do not want to purchase equipment in the new 700 MHz public safety band, wherein 2.6 megahertz of spectrum is designated for nationwide interoperability.[40] We also attempted to minimize burdens on public safety entities, including small entities, by not requiring that existing public safety licensees apply-for and be licensed to operate mobile and portable transmitters on the nationwide interoperability channels in the existing public safety bands below 470 MHz.

**Report to Congress:** The Commission will send a copy of the *Third Memorandum Opinion and Order,* including the Third Supplemental Final Regulatory Flexibility Analysis, in a report to be sent to Congress pursuant to SBREFA.[41] A copy of the *Third Memorandum Opinion and Order* including the Third Supplemental Final Regulatory Flexibility Analysis (or summaries thereof) will also be published in the Federal Register.[42] In addition, the Commission will send a copy of the *Third Memorandum Opinion and Order,* including this Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the SBA.

[40] *See Third Report and Order*, paras. 82-90, *supra.*

[41] *See* 5 U.S.C. § 801(a)(1)(A).

[42] *See 5* U.S.C. § 604(b).

## APPENDIX C

### LIST OF PARTIES
### *(Third Memorandum Opinion and Order)*

The following is a list of parties filing petitions and responsive pleadings in response to the *First Report and Order* in The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *First Report and Order and Third Notice of Proposed Rule Making,* 14 FCC Rcd 152, 164–228 (1998).

**Petitions for Reconsideration and/or Clarification were filed by:**

1. American Association of State Highway and Transportation Officials,
   Forestry Conservation Communications Association,
   International Association of Fire Chiefs, Inc.,
   International Association of Fish and Wildlife Agencies,
   International Municipal Signal Association, and
   National Association of State Foresters ("AASHTO")
2. American National Standards Institute ("ANSI")
3. Association of Public-Safety Communications Officials-International, Inc. ("APCO")
4. Dataradio Group of Companies ("Dataradio")
5. Ericsson, Inc. ("Ericsson")
6. Federal Law Enforcement Wireless Users Group ("FLEWUG")
7. King Communications U.S.A. Inc. ("King")
8. Motorola, Inc. ("Motorola")
9. National Public Safety Telecommunications Council ("NPSTC")
10. New York State Technology Enterprise Corporation ("NYSTEC")
11. Commonwealth of Pennsylvania ("Pennsylvania")
12. John Powell ("Powell")
13. Project 25 Steering Committee ("Project 25")
14. Safety Tech Industries ("STI")
15. State of California ("California")
16. State of Florida ("Florida")
17. Telecommunications Industry Association ("TIA")

**Oppositions and Replies to Petitions for Reconsideration were filed by:**

1. AASHTO
2. APCO
3. API
4. California
5. Dataradio
6. Ericsson
7. Florida
8. Minnesota Department of Transportation (Minnesota DOT)
9. Motorola
10. Pennsylvania
11. STI
12. UTC, The Telecommunications Association ("UTC")

## APPENDIX C (cont'd)

**Comments/Reply Comments on *First Report and Order* Issues were filed by:**

1. APCO Canada ("APCO Canada")
2. Daniels Electronics Ltd. ("Daniels")
3. Simoco International Limited ("Simoco")
4. Union Pacific Railroad Company ("UPRR")
5. DuPage Public Safety Communications ("DuPage")
6. Illinois Chapter of APCO ("Illinois APCO")
7. Northwest Central Dispatch System ("NWCDS")
8. City of Chicago OEC ("Chicago")
9. State of Nebraska ("Nebraska")
10. Elk Grove Village Fire Department ("Elk Grove")

## APPENDIX D

### LIST OF COMMENTERS
### (*Third Report and Order*)

The following is a list of parties filing comments and reply comments in response to the *Third Notice of Proposed Rule Making* in The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *First Report and Order and Third Notice of Proposed Rule Making*, 14 FCC Rcd 152, 228–246 (1998).

**Comments**

Air Travelers Association, American Airlines, The General Aviation Manufacturers Association, Outreach, Stanford University (The GPS Research Program), the U.S. GPS Industry Council, and United Airlines (collectively, "GPS Commenters")
American Association of State Highway and Transportation Officials ("AASHTO"), Forestry Conservation Communications Association ("FCCA"), International Association of Fire Chiefs, Inc. ("IAFC"), International Association of Fish and Wildlife Agencies ("IAFWA"), International Municipal Signal Association ("IMSA"), and National Association of State Foresters ("NASF") (collectively, "Joint Commenters AASHTO, *et al.*")
American Petroleum Institute (API)
Association of Public safety Communications Officials International, Inc. (APCO)
Vanu G. Bose (Bose)
State of California (California)
Federal Law Enforcement Wireless Users Group (FLEWUG)
State of Florida (Florida)
International Association of Chiefs of Police (IACP)
County of Los Angeles (Los Angeles)
Motorola, Inc. (Motorola)
National League of Cities and the City and County of San Francisco (collectively, "Cities")
National Public Safety Telecommunications Council (NPSTC)
National Telecommunications and Information Administration (NTIA)
New York State Technology Enterprise Corporation (NYSTEC)
Executive Office of the President, Office of Management and Budget (OMB)
Commonwealth of Pennsylvania (Pennsylvania)
Public Safety Wireless Network Program (PSWN)
Region–20 800 MHz Public Safety Review Committee Legislative/Regulatory Affairs Committee (Region 20)
State of Tennessee, Department of Transportation (Tennessee DOT)
Dr. Michael C. Trahos, D.O., NCE, CET (Trahos)
UTC, The Telecommunications Association (UTC)
Commonwealth of Virginia, Department of Information Technology (Virginia Dept. of Info Technology) (Late or *Ex Parte*)
State of Wisconsin (Wisconsin)

**Reply Comments**

Airtouch Communications, Inc., Iridium LLC, Iridium U.S., L.P.,
L/Q Licensee, Inc., Globalstar, L.P.
Air Travelers Association, American Airlines, The General Aviation Manufacturers Association,
Outreach, Stanford University (The GPS Research Program), the U.S. GPS Industry Council, and
United Airlines (collectively, "GPS Commenters")
American Petroleum Institute (API)
State of Arizona (Arizona)
Association of Public safety Communications Officials International, Inc. (APCO)
State of California (California)
Federal Law Enforcement Wireless Users Group (FLEWUG)
Motorola, Inc. (Motorola)
National Oceanic and Atmospheric Administration and U.S. Coast Guard(NOAA/USCG)
National Telecommunications and Information Administration (NTIA)
Commonwealth of Pennsylvania (Pennsylvania)
Public Safety Wireless Network Program (PSWN)
Region VI Northern California NPSCPAC Review and Revision Committee (Region 6)
Dr. Michael C. Trahos, D.O., NCE, CET (Trahos)
UTC, The Telecommunications Association (UTC)

## APPENDIX E

### SUMMARY OF Y2K COMMENTS TO *THIRD NOTICE*

1. APCO states that some of the procedures we presented are unlikely to be effective and could add unnecessary burdens on public safety communications personnel. APCO argues that: (1) RPCs are not the appropriate vehicle to gather this information because most 800 MHz RPC members will also be part of the 700 MHz RPC process and will soon be engrossed in that activity, leaving little or no time for additional responsibilities; (2) RPCs do not have the funding to undertake such substantial information gathering and reporting activities; (3) 800 MHz RPCs will only reach a small percentage of public safety agencies, as the majority of state and local governments are not licensed in the 800 MHz band and; (4) local government personnel involved in Y2K compliance will be in information technology departments generally separate from agencies with radio communications responsibility.[1] FLEWUG agrees with APCO, stating that trying to collect information through the existing 800 MHz RPCs will only yield information on systems operating at 800 MHz, and a more comprehensive approach is needed. FLEWUG adds that 800 MHz RPCs could operate in–region as a forum for identifying problems and solutions.[2]

2. California states that unlike our oversight on how common carriers provide service to their customers, we have no responsibility in law, regulation, or tradition on how public safety communications systems are operated. The Y2K problem is not an issue of how the radio spectrum is utilized, but rather is an issue of how public safety systems will be impacted operationally by software failures of the equipment it uses.[3] California indicates that most of the equipment potentially affected is not radio equipment for which we might claim some peripheral responsibility, but rather is associated equipment such as dispatch consoles, computer-aided dispatch systems, logging recorders, and other devices for which we have claimed no historical interest.[4]

3. FLEWUG states that it supports the need for additional information regarding Y2K preparedness of public safety radio systems and encourages us to pursue such a course of action. FLEWUG indicates that it perceives Y2K as having both a computer software and firmware problem and a security problem. Accordingly, FLEWUG states that contingency plans and other security measures should be put in place to minimize risks posed by the Y2K problem to public safety radio systems. FLEWUG thus urges the implementation of sufficient safeguards to ensure system-specific information is not revealed if we choose to collect information regarding the Y2K problem. FLEWUG also believes frequency coordinators provide convenient collection points for information, and collecting information through the frequency coordinators instead of from the licensees directly might be more efficient. FLEWUG asserts that if frequency coordinators collect such information, we should ensure they do not try to charge additional fees to their public safety customers or raise fees for coordination services because the public safety community should not realize fee increases due to Y2K data collection efforts. FLEWUG contends that another option would be for the Commission to survey all public safety agencies, with the survey structured to yield statistically significant results to ascertain both the current state of Y2K readiness and the progress and range of compliance initiatives.[5] The information sought likely could

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[1] APCO Comments at 10-12.

[2] FLEWUG Comments at 21 and Reply Comments at 17.

[3] California Comments at 9.

[4] *Id.*

[5] FLEWUG Comments at 23.

be collected via, e.g., a short two-page survey, but any survey must be completed quickly and with a sufficient response rate from the community, given the imminent nature of the year 2000 problem.[6]

4. Florida states that within its state government, the effort to address the Y2K problem has been ongoing for several years. Florida expresses doubt that the RPCs or frequency coordinators will be able to provide any substantial information on Y2K compliance among public safety agencies.[7]

5. IACP states that Y2K efforts are primarily a local, state, and federal public safety agency issue and that our primary function should only be to alert these agencies to potential Y2K communications related problems. IACP also does not believe it is appropriate to burden either the RPCs or the Public Safety coordinators with Y2K responsibilities because neither is funded or expertly staffed to provide this service. IACP believes that our most effective action would be a directive to each licensee detailing the Y2K problem in simple, understandable terms and providing a list of resources for the licensee to use.[8] PSWN agrees with IACP that it is not appropriate to burden either the RPCs or the public safety coordinators with Y2K responsibilities.[9]

6. NPSTC states that Y2K will impact many computer aided dispatch systems and that trunked radio systems also may be affected. Additionally, NPSTC believes that the Global Position System ("GPS") equipment used in automatic vehicle location and other high technology systems also may experience date/time problems. NPSTC also states that it is difficult to visualize how this serious problem can be addressed within the scope of this proceeding, particularly considering the time element involved. NPSTC contends that direct notices from the Commission to every licensee would carry more weight and reach more Public Safety agencies than any other means. NPSTC further states that the Commission's notices should contain specific information regarding recognition of the problem, how it might affect Public Safety equipment and systems, and Internet web sites where further information may be obtained.[10] Joint Comments were filed by NPSTC members; AASHTO, FCCA, IAFC, IAFWA, IMSA and NASF ("Joint Commenters") to "supplement" NPSTC's comments. As for our suggestion that frequency coordinators could provide Y2K notification, NPSTC observes that the coordinators generally are in contact with public safety agencies only during the time of the coordination process. The Joint Commenters add that while there might be an organizational element regarding the appropriateness of the frequency coordinators serving as a conduit for Y2K information, *i.e.*, the coordinators generally deal with communications system management personnel. However, in many organizations, Y2K issues are administered by a management information department, which might be part of a different branch within the public safety service or even a different branch of the broader governmental entity than those responsible for communications services.[11]

7. Cities state that San Francisco's departments are currently engaged in efforts to seek Y2K compliance from vendors. The Cities recommend that we obtain detailed information on Y2K compliance efforts directly from individual licensees.[12] The Cities also suggest that we assist licensees by

[6] *Id.*

[7] Florida Comments at 7-8.

[8] Comments of IACP at 6.

[9] PSWN Reply Comments at 11.

[10] NPSTC Comments at 10-12.

[11] Joint Commenters Comments at 4.

[12] The Cities Comments at 18.

requiring equipment manufacturers to provide more comprehensive information regarding their efforts to resolve potential Y2K problems with their products. To assist local governments and licensees in obtaining uniform results, The Cities state that we should also formulate criteria for testing procedures and set standards for defining "Year 2000 compliance" as it relates to telecommunications technologies.[13] Opposition to this suggestion was expressed by Motorola.[14]

8. PSWN states that there are likely to be a number of public safety radio systems with Y2K problems because the average age of public safety systems is approximately ten years. Thus, PSWN states that it is advisable for us to attempt to ascertain the extent of the problem and degree of readiness. PSWN adds that the data collection approaches we suggested would be overly burdensome (especially on frequency coordinators and RPCs) and would establish a precedent for coupling other issues with spectrum management. PSWN suggests that we issue a short, two page, statistical survey, perhaps using cover letters or other introductory materials from organizations and associations well known and regarded by the community to improve the likelihood of a sufficient response.[15]

9. Motorola views the Y2K problem as an important business issue that can affect all parts of its business as well as its suppliers and customers. Accordingly, it has engaged all Motorola business units to identify and address Y2K issues.[16] From a practical perspective, Motorola states that it is unlikely that we can, beginning in the middle of the first quarter of 1999, propose, hear comments on, and develop regulation which will address the Y2K problem with sufficient speed to have any actual effect before the year 2000 arrives. Motorola avers that market forces are appropriately encouraging manufacturers to address the Y2K readiness of their equipment, and that we are taking the appropriate route by fostering an awareness of the Y2K issue and by promoting dialog between manufacturers and users of equipment. Motorola urges us to continue in this role and to eschew suggestions of regulation in this area.[17]

[13] *Id.*

[14] Motorola Reply Comments at 12.

[15] PSWN Comments at 19-20.

[16] Motorola Reply Comments at 12.

[17] *Id.* at 12-13.

## APPENDIX F

### FINAL RULES

***Third Memorandum Opinion and Order***
**and**
***Third Report and Order***

Part 90 of Title 47 of the Code of Federal Regulations is amended as follows:

1. The authority citation for Part 90 continues to read as follows:

AUTHORITY: Sections 4(i), 11, 303(g), 303(r), and 332(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 161, 303(g), 303(r), 332(c)(7).

2. Section 90.1 is amended by revising paragraph (b), to read as follows:

**§ 90.1 Basis and purpose.**

* * * * *

(b) *Purpose.* This part states the conditions under which radio communications systems may be licensed and used in the Public Safety, Industrial/Business Radio Pool, and Radiolocation Radio Services. These rules do not govern the licensing of radio systems belonging to and operated by the United States.

* * * * *

3. Section 90.7 is amended by adding definitions for Interoperability and State to read as follows:

**§ 90.7 Definitions**

* * * * *

*Interoperability.* An essential communication link within public safety and public service wireless communications systems which permits units from two or more different entities to interact with one another and to exchange information according to a prescribed method in order to achieve predictable results.

* * * * *

*State.* Any of the 50 United States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, the U.S. Virgin Islands, American Samoa, and Guam.

* * * * *

4. Section 90.20 is amended by revising the numbers in the "Limitations" column for 53 of the existing entries in the table in paragraph (c)(3), and by adding new paragraphs (d)(80), (81), (82), and (83), and by adding a new paragraph (g) to read as follows:

**§ 90.20 Public Safety Pool.**

* * * * *

(c) * * *

(3) * * *

PUBLIC SAFETY POOL FREQUENCY TABLE

| Frequency or band | Class of station(s) | Limitations | Coordinator |
|---|---|---|---|
| * * * * * | * * * * * | * * * * * | * * * * * |
| 151.130 | .....do..... | 28, 81. | PH |
| 151.1375 | .....do..... | 27, 28, 80. | PH |
| 151.145 | .....do..... | 28, 81. | PO |
| * * * * * | * * * * * | * * * * * | * * * * * |
| 154.445 | .....do..... | 28, 81. | PF |
| 154.4525 | .....do..... | 27, 28, 80. | PF |
| * * * * * | * * * * * | * * * * * | * * * * * |
| 155.745 | .....do..... | 81. | PX |
| 155.7525 | .....do..... | 27, 80, 83. | PX |
| 155.760 | .....do..... | 81. | PX |
| * * * * * | * * * * * | * * * * * | * * * * * |
| 158.730 | .....do..... | 81. | PP |
| 158.7375 | .....do..... | 27, 80. | PP |
| 158.745 | Base or mobile | 81. | PX |
| * * * * * | * * * * * | * * * * * | * * * * * |
| 159.465 | .....do..... | 81. | PO |
| 159.4725 | .....do..... | 27, 80. | PO |
| * * * * * | * * * * * | * * * * * | * * * * * |
| 453.200 | .....do..... | 81. | PX |
| 453.20625 | .....do..... | 44, 82. | PX |
| 453.2125 | .....do..... | 27, 80, 83. | PX |
| 453.21875 | .....do..... | 44, 82. | PX |
| 453.225 | .....do..... | 81. | PX |
| * * * * * | * * * * * | * * * * * | * * * * * |
| 453.450 | .....do..... | 81. | PX |
| 453.45625 | .....do..... | 44, 82. | PX |
| 453.4625 | .....do..... | 27, 80. | PX |
| 453.46875 | .....do..... | 44, 82. | PX |
| 453.475 | .....do..... | 81. | PX |
| * * * * * | * * * * * | * * * * * | * * * * * |
| 453.700 | .....do..... | 81. | PX |
| 453.70625 | .....do..... | 44, 82. | PX |
| 453.7125 | .....do..... | 27, 80. | PX |
| 453.71875 | .....do..... | 44, 82. | PX |
| 453.725 | .....do..... | 81. | PX |
| * * * * * | * * * * * | * * * * * | * * * * * |
| 453.850 | .....do..... | 81. | PX |
| 453.85625 | .....do..... | 44, 82. | PX |
| 453.8625 | .....do..... | 27, 80. | PX |
| 453.86875 | .....do..... | 44, 82. | PX |

| | | | |
|---|---|---|---|
| 453.875 | .....do..... | 81. | PX |
| * * * * * | * * * * * | * * * * * | * * * * * |
| 458.200 | .....do..... | 81. | PX |
| 458.20625 | .....do..... | 44, 82. | PX |
| 458.2125 | .....do..... | 27, 80, 83. | PX |
| 458.21875 | .....do..... | 44, 82. | PX |
| 458.225 | .....do..... | 81. | PX |
| * * * * * | * * * * * | * * * * * | * * * * * |
| 458.450 | .....do..... | 81. | PX |
| 458.45625 | .....do..... | 44, 82. | PX |
| 458.4625 | .....do..... | 27, 80. | PX |
| 458.46875 | .....do..... | 44, 82. | PX |
| 458.475 | .....do..... | 81. | PX |
| * * * * * | * * * * * | * * * * * | * * * * * |
| 458.700 | .....do..... | 81. | PX |
| 458.70625 | .....do..... | 44, 82. | PX |
| 458.7125 | .....do..... | 27, 80. | PX |
| 458.71875 | .....do..... | 44, 82. | PX |
| 458.725 | .....do..... | 81. | PX |
| * * * * * | * * * * * | * * * * * | * * * * * |
| 458.850 | .....do..... | 81. | PX |
| 458.85625 | .....do..... | 44, 82. | PX |
| 458.8625 | .....do..... | 27, 80. | PX |
| 458.86875 | .....do..... | 44, 82. | PX |
| 458.875 | .....do..... | 81. | PX |
| * * * * * | * * * * * | * * * * * | * * * * * |

(d) * * *

(80) After **[effective date]** this frequency is available primarily for public safety interoperability only communications. Stations licensed prior to **[effective date]** may continue to use this frequency on a co–primary basis until January 1, 2005. After January 1, 2005, all operations will be secondary to co–channel interoperability communications.

(81) After [**effective date**] new stations will only be licensed with an authorized bandwidth not to exceed 11.25 kHz. Licensees authorized prior to **[effective date]** may continue to use bandwidths wider than 11.25 kHz on a co–primary basis until January 1, 2005. After January 1, 2005, all stations operating with an authorized bandwidth greater than 11.25 kHz will be secondary to adjacent channel interoperability operations.

(82) This frequency is reserved for assignment only in support of, and on a secondary basis to, nationwide interoperability use.

(83) This interoperability frequency is dedicated for the express purpose of nationwide interoperability calling.

* * * * *

(g) *Former* public correspondence *working channels in the maritime VHF (156-162 MHz) band allocated for public safety use in 33 inland Economic Areas.*

(1) We define service areas in the marine VHF (156-162 MHz) band by forty–two geographic areas called VHF Public Coast Service Areas (VPCSAs). See § 80.371(c)(1)(ii) of this chapter (Public correspondence frequencies). VPCSAs are based on, and composed of one or more of, the U.S. Department of Commerce's 172 Economic Areas (EAs). See 60 Fed Reg. 13114 (Mar. 10, 1995). You may inspect and copy maps of the EAs and VPCSAs at the FCC Reference Center, Room CY A-257, 445 12th St., S.W., Washington, DC 20554. These maps and data are also available on the FCC website at www.fcc.gov/oet/info/maps/areas/. We number public correspondence channels in the maritime VHF (156-162 MHz) band as channels 24 to 28 and channels 84 to 88. Each channel number represents a channel pair. See § 80.371(c) of this chapter.

(2) We allocated two contiguous 25 kHz public correspondence channels in the maritime VHF (156-162 MHz) band for public safety use in 33 VPCSAs that are not near major waterways. These 33 VPCSAs are located in an inland region stretching from the western Great Plains to eastern California and Oregon. Each of these 33 inland VPCSAs corresponds to a single EA. Channel pairs 25, 84, and 85 are paired 25 kHz bandwidth channels as set forth in Table A below. In each of the 33 inland VPCSAs/EAs listed in Table B below, two of these three channel pairs are allocated for public safety use by entities eligible for licensing under paragraph (a) of this section.

**Table A** - List of Channel Numbers and Corresponding Center Frequencies, and Certified Coordinators

| Channel Number | Mobile Station Transmit Center Frequency in MHz | Base Station Transmit Center Frequency in MHz | Coordinator |
|---|---|---|---|
| 25 | 157.250 | 161.850 | PX |
| 84 | 157.225 | 161.825 | PX |
| 85 | 157.275 | 161.875 | PX |

**Table B** - List of Channels Allocated for Public Safety Use in 33 Inland VPCSAs/EAs

| VHF Public Coast Service Area | Name | Economic Area | Public Safety Channel Pairs |
|---|---|---|---|
| 10 | Grand Forks | 110 | 25, 84 |
| 11 | Minot | 111 | 25, 84 |
| 12 | Bismarck | 112 | 25, 84 |
| 13 | Aberdeen | 114 | 25, 84 |
| 14 | Rapid City | 115 | 25, 84 |
| 15 | North Platte | 121 | 25, 84 |
| 16 | Western Oklahoma | 126 | 25, 85 |
| 17 | Abilene | 128 | 25, 85 |
| 18 | San Angelo | 129 | 25, 85 |

| | | | |
|---|---|---|---|
| 19 | Odessa-Midland | 135 | 25, 85 |
| 20 | Hobbs | 136 | 25, 85 |
| 21 | Lubbock | 137 | 25, 85 |
| 22 | Amarillo | 138 | 25, 85 |
| 23 | Santa Fe | 139 | 25, 84 |
| 24 | Pueblo | 140 | 25, 84 |
| 25 | Denver-Boulder-Greeley | 141 | 25, 84 |
| 26 | Scottsbluff | 142 | 25, 84 |
| 27 | Casper | 143 | 25, 84 |
| 28 | Billings | 144 | 25, 84 |
| 29 | Great Falls | 145 | 25, 84 |
| 30 | Missoula | 146 | 25, 84 |
| 31 | Idaho Falls | 148 | 25, 85 |
| 32 | Twin Falls | 149 | 25, 85 |
| 33 | Boise City | 150 | 25, 84 |
| 34 | Reno | 151 | 25, 84 |
| 35 | Salt Lake City-Ogden | 152 | 25, 85 |
| 36 | Las Vegas | 153 | 25, 84 |
| 37 | Flagstaff | 154 | 25, 84 |
| 38 | Farmington | 155 | 25, 84 |
| 39 | Albuquerque | 156 | 25, 84 |
| 40 | El Paso | 157 | 25, 85 |
| 41 | Phoenix-Mesa | 158 | 25, 84 |
| 42 | Tucson | 159 | 25, 84 |

(3) The channels pairs set forth in Table B above are designated primarily for the purpose of interoperability communication.

(4 ) Channel pairs 25, 84, and 85 as listed in Table B above were formerly allocated and assigned (under § 80.371(c) (1997) of this chapter) as public correspondence working channels in the maritime VHF 156-162 MHz band; these channels were also shared (under former § 90.283 (1997) of this chapter) with private land radio mobile stations including grandfathered public safety licensees). Thus, there are grandfathered licensees nationwide (maritime and private land mobile radio stations, including by rule waiver) operating on these channels both inside and outside of the 33 EAs listed in Table B above.

(5) All applicants and licensees under this paragraph must comply with the relevant technical

sections under this part unless otherwise stated in this paragraph (g) using the following standards and procedures:

(i) Provide evidence of frequency coordination in accordance with § 90.175. Public safety coordinators except the Special Emergency Coordinator are certified to coordinate applications for the channels pairs set forth in Table B above (*i.e.*, letter symbol PX under paragraph (c)(2) of this section).

(ii) Station power, as measured at the output terminals of the transmitter, must not exceed 50 Watts for base stations and 20 Watts for mobile stations, except in accordance with the provisions of paragraph (vi). Antenna height (HAAT) must not exceed 122 meters (400 feet) for base stations and 4.5 meters (15 feet) for mobile stations, except in accordance with paragraph (vi). Such base and mobile channels shall not be operated on board aircraft in flight.

(iii) Frequency protection must be provided to other stations in accordance with the following guidelines for each channel and for each area and adjacent area:

(A) Protect coast stations licensed prior to July 6, 1998, by the required separations shown in Table C below.

(B) Protect stations described in paragraph(g)(4), by frequency coordination in accordance with § 90.175 of this part.

(C) Protect public safety stations granted under this paragraph (g), by frequency coordination in accordance with § 90.175 of this part.

(D) *Where the Public Safety designated channel is not a Public Safety designated channel in an adjacent EA:* Applicants shall engineer base stations such that the maximum signal strength at the boundary of the adjacent EA does not exceed 5 dBμV/m.

(iv) The following table, along with the antenna height (HAAT) and power (ERP), must be used to determine the minimum separation required between proposed base stations and co-channel public coast stations licensed prior to July 6, 1998 under Part 80 of this chapter. Applicants whose exact ERP or HAAT are not reflected in the table must use the next highest figure shown.

**Table C** - Required Separation in Kilometers (Miles) of Base Station From Public Coast Stations

Base Station Characteristics

| HAAT | ERP (watts) | | | | |
|---|---|---|---|---|---|
| Meters (feet) | 400 | 300 | 200 | 100 | 50 |
| 15 (50) | 138 (86) | 135 (84) | 129 (80) | 129 (80) | 116 (72) |
| 30 (100) ..... | 154 (96) | 151 (94) | 145 (90) | 137 (85) | 130 (81) |
| 61 (200) ..... | 166 (103) | 167 (104) | 161 (100) | 153 (95) | 145 (90) |
| 122 (400) ..... | 187 (116) | 177 (110) | 183 (114) | 169 (105) | 159 (99) |

(v) In the event of interference, the Commission may require, without a hearing, licensees of base stations authorized under this section that are located within 241 kilometers (150 miles) of a co-channel public coast, I/LT, or grandfathered public safety station licensed prior to July 6, 1998, or an international border, to reduce power, decrease antenna height, and/or install directional antennas.

Mobile stations must be operated only within radio range of their associated base station.

(vi) Applicants seeking to be licensed for stations exceeding the power/antenna height limits of the table in paragraph (iv) must request a waiver of that paragraph and must submit with their application an interference analysis, based upon an appropriate, generally-accepted terrain-based propagation model, that shows that co-channel protected entities, described in paragraph (iii), would receive the same or greater interference protection than the relevant criteria outlined in paragraph (iii).

5. Section 90.35 is amended by revising the numbers in the "Limitations" column for the existing entry [frequency 159.480] in the table in paragraph (b)(3), and by adding a new paragraph (c)(82) to read as follows:

**§ 90.35 Industrial/Business Pool.**

* * * * *

(b) * * *

(3) * * *

INDUSTRY/BUSINESS POOL FREQUENCY TABLE

| Frequency or band | Class of station(s) | Limitations | Coordinator |
|---|---|---|---|
| * * * * * | * * * * * | * * * * * | * * * * * |
| 159.480 | .....do..... | 8, 82. | IP |
| * * * * * | * * * * * | * * * * * | * * * * * |

(c) * * *

(82) After **[effective date]** new stations will only be licensed with an authorized bandwidth not to exceed 11.25 kHz. Licensees authorized prior to **[effective date]** may continue to use bandwidths wider than 11.25 kHz on a co–primary basis until January 1, 2005. After January 1, 2005, all stations operating with an authorized bandwidth greater than 11.25 kHz will be secondary to adjacent channel public safety interoperability operations. (*See* § 90.20(c)(3)).

* * * * *

6. Section 90.175(i) amended by adding paragraphs 15 and 16 to read as follows:

**§ 90.175 Frequency coordination requirements.**

* * * * *

(i) * * *

(15) Applications for a state license under § 90.529.

(16) Applications for narrowband low power channels listed for itinerant use in § 90.531(b)(4).

* * * * *

7. Section 90.179 is amended by revising paragraph (g) to read as follows:

**§ 90.179 Shared use of radio stations.**

* * * * *

(g) Notwithstanding paragraph (a) of this section, licensees authorized to operate radio systems on Public Safety Pool frequencies designated in § 90.20 may share their facilities with Federal Government entities on a non-profit, cost-shared basis. Such a sharing arrangement is subject to the provisions of paragraphs (b), (d), and (e) of this section. State governments authorized to operate radio systems under § 90.529 may share the use of their systems (for public safety services not made commercially available to the public) with any entity that would be eligible for licensing under § 90.523 and Federal government entities.

* * * * *

8. Section 90.203 is amended by revising paragraph (j) to read as follows:

**§ 90.203 Certification Required**

* * * * *

(j) * * *

(1) Applications for certification received on or after January 1, 2005, for mobile and portable transmitters designed to transmit voice on public safety frequencies in the in the 150-174 MHz band will be granted only if the mobile/portable equipment is capable of operating on the nationwide public safety interoperability calling channel in the 150-174 MHz band. (See § 90.20(c), (d) of this part.) Applications for certification received on or after January 1, 2005, for mobile and portable transmitters designed to transmit voice on public safety frequencies in the in the 450-470 MHz band will be granted only if the mobile/portable equipment is capable of operating on the nationwide public safety interoperability calling channel in the 450-470 MHz band. (See § 90.20(c), (d) of this part.)

9. Section 90.529 is added to read as follows:

**§ 90.529 State License**

(a) Narrowband channels designated as state channels in § 90.531 are licensed to each state (as defined in § 90.7) as follows:

(1) Each state that chooses to take advantage of the spectrum designated as state channels must file an application for up to 2.4 megahertz of this spectrum no later than December 31, 2001. For purposes of this section, the elected chief executive (Governor) of each state, or his or her designee, shall be deemed the person authorized to apply for the State License.

(2) What ever part of this 2.4 megahertz that a state has not applied for by December 31, 2001, will revert to General Use and be administered by the relevant RPC (or RPCs in the instances of states that encompass multiple RPCs).

(b) Each state license will be granted subject to the condition that the state certifies on or before each applicable benchmark date (see below) that it is:

(1) providing or prepared to provide "substantial service" to one-third of their population or territory by January 1, 2012, *i.e.*, within five years of the date that incumbent broadcasters are required to relocate to other portions of the spectrum;

(2) providing or prepared to provide "substantial service" to two-thirds of their population or territory by January 1, 2017, *i.e.*, within ten years of the date that incumbent broadcasters are required to relocate to other portions of the spectrum.

(c) The Commission will deem a state "prepared to provide substantial service" if the licensee certifies that a radio system has been approved and funded for implementation by the deadline date. "Substantial service" refers to the construction and operation of 700 MHz facilities by public safety entities providing service which is sound, favorable , and substantially above a level of mediocre service which just might minimally warrant renewal.

(d) If a state licensee fails to meet any condition of the grant the state license is modified automatically to the frequencies and geographic areas where the state certifies that it is providing substantial service.

(e) Any recovered state license spectrum will revert to General Use. However, spectrum licensed to a state under a state license remains unavailable for reassignment to other applicants until the Commission's database reflects the parameters of the modified state license.

10. Section 90.531 is amended by revising paragraphs (b) and (c) to read as follows:

**§ 90.531 Band plan.**

(b) *Narrowband segments.* There are four band segments that are designated for use with narrowband emissions. Each of these narrowband segments is divided into 480 channels having a channel size of 6.25 kHz as follows:

| Frequency Range | Channel Numbers |
|---|---|
| 764 - 767 MHz | 1 - 480 |
| 773 - 776 MHz | 481 - 960 |
| 794 - 797 MHz | 961 - 1440 |
| 803 - 806 MHz | 1441 - 1920 |

(1) *Narrowband interoperability channels.* The following narrowband channels are designated for nationwide interoperability licensing and use: 23, 24, 39, 40, 63, 64, 79, 80, 103, 104, 119, 120,143, 144, 159, 160, 183, 184, 199, 200, 223, 224, 239, 240, 263, 264, 279, 280, 303, 304, 319, 320, 641, 642, 657, 658, 681, 682, 697, 698, 721, 722, 737, 738, 761, 762, 777, 778, 801, 802, 817, 818, 841, 842, 857, 858, 881, 882, 897, 898, 921, 922, 937, 938, 983, 984, 999, 1000, 1023, 1024, 1039, 1040, 1063, 1064, 1079, 1080, 1103, 1104, 1119, 1120, 1143, 1144, 1159, 1160, 1183, 1184, 1199, 1200, 1223, 1224, 1239, 1240, 1263, 1264, 1279, 1280, 1601, 1602, 1617, 1618, 1641, 1642, 1657, 1658, 1681, 1682, 1697, 1698, 1721, 1722, 1737, 1738, 1761, 1762, 1777, 1778, 1801, 1802, 1817, 1818, 1841, 1842, 1857, 1858, 1881, 1882, 1897, 1898.

(2) *Narrowband reserve channels.* The following narrowband channels are undesignated and reserved pending further Commission action in WT Docket No. 96-86 (*proceeding pending*): 21, 22, 37, 38, 61, 62, 77, 78, 101, 102, 117, 118, 141, 142, 157, 158, 181, 182, 197, 198, 221, 222, 237, 238, 261, 262, 277, 278, 301, 302, 317, 318, 643, 644, 659, 660, 683, 684, 699, 700, 723, 724, 739, 740, 763, 764, 779, 780, 803, 804, 819, 820, 843, 844, 859, 860, 883, 884, 899, 900, 923, 924, 939, 940, 981, 982, 997, 998, 1021, 1022, 1037, 1038, 1061, 1062, 1077, 1078, 1101, 1102, 1117, 1118, 1141, 1142, 1157, 1158, 1181, 1182, 1197, 1198, 1221, 1222, 1237, 1238, 1261, 1262, 1277, 1278, 1603, 1604, 1619, 1620, 1643, 1644, 1659, 1660, 1683, 1684, 1699, 1700, 1723, 1724, 1739, 1740, 1763, 1764, 1779,1780, 1803, 1804, 1819,1820, 1843, 1844, 1859, 1860, 1883, 1884, 1899, 1900.

(3) *Narrowband low power channels subject to regional planning.* The following narrowband channels are designated for low power use for on-scene incident response purposes using mobiles and portables subject to Commission-approved regional planning committee regional plans. Transmitter power must not exceed 2 watts (ERP): Channels 1-8 paired with Channels 961-968, and Channels 949-958 paired with Channels 1909-1918.

(4) *Narrowband low power itinerant channels.* The following narrowband channels are designated for low power use for on-scene incident response purposes using mobiles and portables. These channels are licensed nationwide for itinerant operation. Transmitter power must not exceed 2 watts (ERP): Channels 9-12 paired with Channels 969–972 and Channels 959-960 paired with Channels 1919-1920.

(5) *Narrowband state channel.* The following narrowband channels are designated for direct licensing to each state (including U.S. territories, districts, and possessions): 25-36, 65-76, 105-116, 145-156, 185-196, 225-236, 265-276, 305-316, 645-656, 685-696, 725-736, 765-776, 805-816, 845-856, 885-896, 925-936, 985-996, 1025-1036, 10651076, 1105-1116, 1145-1156, 1185-1196, 1225-1236, 1265-1276, 1605-1616, 1645-1656, 1685-1696, 1725-1736, 1765-1776, 1805-1816, 1845-1856, 1885-1896.

(6) *Narrowband general use channels.* All narrowband channels established in paragraph (b), other than those listed in paragraphs (b)(1), (b)(2), (b)(4) and (b)(5) are designated for assignment to public safety eligibles subject to Commission-approved regional planning committee regional plans.

(c) Wideband segments. There are two band segments that are designated for use with wideband emissions. Each of these wideband segments is divided into 120 channels having a channel size of 50 kHz as follows:

| Frequency Range | Channel Numbers |
|---|---|
| 767 - 773 MHz | 1 - 120 |
| 797 - 803 MHz | 121 - 240 |

(1) *Wideband interoperability channels.* The following wideband channels are designated for nationwide interoperability licensing and use: 28-30, 37-39, 46-48, 73-75, 83-84, 91-93, 148-150, 157-159, 166-168, 193-195, 202-204, 211-213.

(2) *Wideband reserve channels.* The following wideband channels are reserved: 1-27, 94-120, 121-147, 214-240.

(3) *Wideband general use channels.* All wideband channels established in paragraph (c), except for those listed in paragraphs (c)(1) and (c)(2), are designated for assignment to public safety eligibles subject to Commission-approved regional planning committee regional plans.

* * * * *

11. Section 90.535 is amended by revising paragraph (a), to read as follows:

**§ 90.535 Modulation and spectrum usage efficiency requirements.**

Transmitters designed to operate in the 764–776 MHz and 794–806 MHz frequency bands must meet the following modulation standards:

(a) All transmitters in the 764–776 MHz and 794–806 MHz frequency bands must use digital modulation. Mobile and portable transmitters may have analog modulation capability only as a secondary mode in addition to its primary digital mode. Mobile and portable transmitters that only operate on the low power channels designated in Sections 90.531(b)(3), 90.531(b)(4), are exempt from this digital modulation requirement.

* * * * *

12. Section 90.537 is revised to read as follows:

**§ 90.537 Trunking requirement.**

All systems using six or more narrowband channels in the 764-776 MHz and 794-806 MHz frequency bands must be trunked systems. Nationwide interoperability channels listed in Section 90.531(b)(1), and the narrowband low power channels listed in Sections 90.531(b)(3), 90.531(4), are not counted as narrowband channels for the purposes of this trunking requirement.

13. Section 90.541 is amended by adding paragraph (d) to read as follows:

**§ 90.541 Transmitting power limits**

* * * * *

(d) Transmitters operating on the narrowband low power channels listed in Sections 90.531(b)(3), 90.531(b)(4), must not exceed 2 watts (ERP).

14. Section 90.543 is revised to add paragraphs (e) and (f) to read as follows:

**§ 90.543 Emission limitations**

* * * * *

(e) For operations in the 764 to 776 MHz and 794 to 806 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to –70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and –80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna

that is representative of the type that will be used with the equipment in normal operation.

(f) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

15. Section 90.547 is revised to read as follows:

**§ 90.547 Interoperability channel capability requirement.**

Mobile and portable transmitters operating in the 764–776 MHz and 794–806 MHz frequency bands must be capable of operating on all of the designated nationwide narrowband interoperability channels pursuant to standards adopted by the Public Safety National Coordination Committee and approved by the Commission. Mobile and portable transmitters that only operate on the low power channels designated in Sections 90.531(b)(3), 90.531(b)(4), are exempt from this interoperability channel capability requirement.

**APPENDIX G**

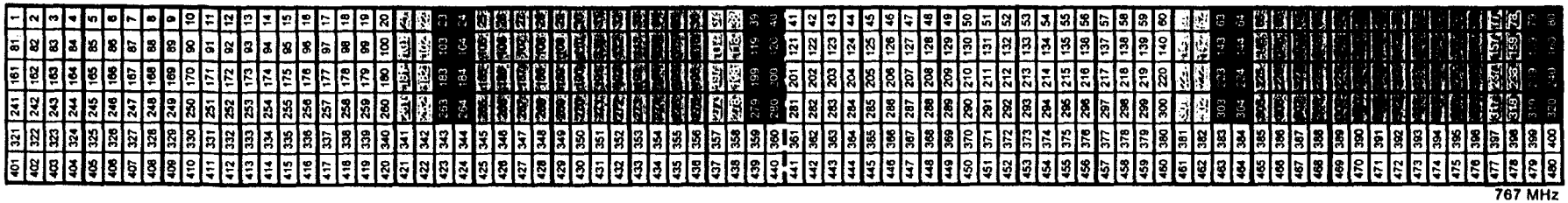
# 700 MHz Public Safety Band — Segmentation & Channelization Tables

- Base Channels (former TV Channels 63 and 64)
- Mobile Channels (former TV Channels 68 and 69)

## 700 MHz BAND PLAN per *Third MO&O and Third R&O* in WT Dkt. 96-86 (TV Ch. 63/64)

480 NARROWBAND BASE CHANNELS - SEGMENT 1 (6.25 kHz each, aggregate to 25 kHz)

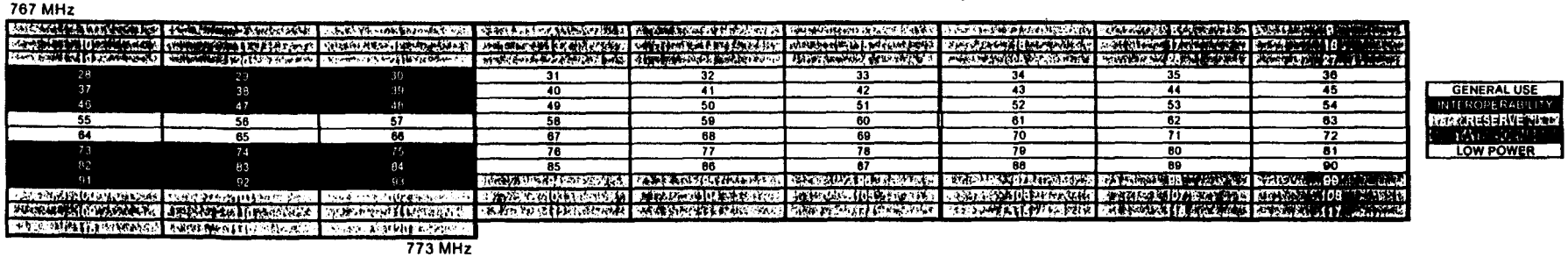
764 MHz



767 MHz

120 WIDEBAND BASE CHANNELS - SEGMENT 1 (50 kHz each, aggregate to 150 kHz)

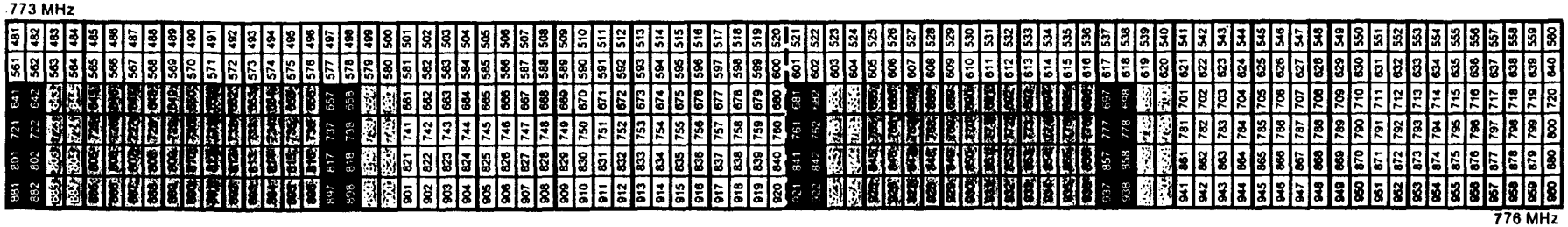
767 MHz




773 MHz

480 NARROWBAND BASE CHANNELS - SEGMENT 2 (6.25 kHz each, aggregate to 25 kHz)

773 MHz



776 MHz

**NARROWBAND CHANNELS:**

Two may be combined provided that the lower channel number is odd (e.g., 1, 3, 5)

Four may be combined provided that the lower channel number is 1 + 4n, n = 0 to 479 (e.g., 1, 5,...1917)

Narrowband channels must maintain a data throughput efficiency of not less than 4.8 kbps for each 6.25 kHz of bandwidth.

**WIDEBAND CHANNELS:**

Two may be combined provided that the lower channel number is 1 + 3n or 2 + 3n, n = 0 to 79 (e.g., 1, 2, 4, 5,...238, 239)

Three may be combined provided that the lower channel number is 1 + 3n, n = 0 to 79 (e.g., 1, 4,...238)

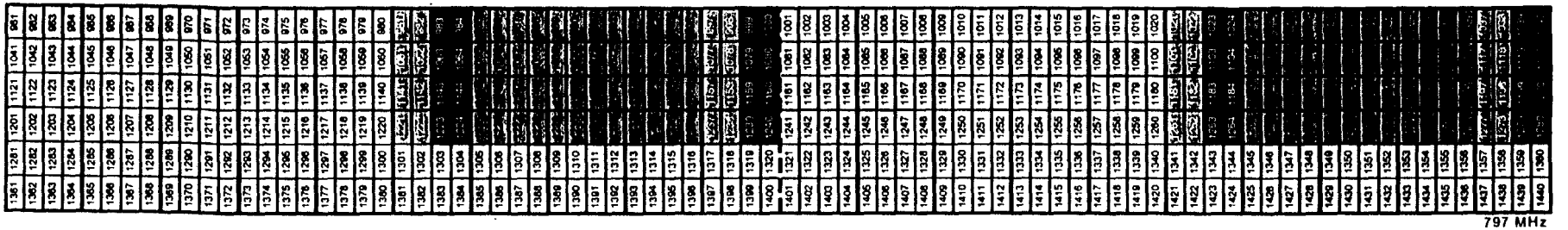
Wideband channels must maintain a data throughput efficiency of not less than 384 kbps for each 150 kHz of bandwidth.

Channel numbers for combined channels are designated by the lowest and highest channel numbers separated by a hyphen, e.g., "1-2" and 1-3".

## 700 MHz BAND PLAN per *Third MO&O and Third R&O* in WT Dkt. 96-86 (TV Ch. 68/69)

480 NARROWBAND MOBILE CHANNELS - SEGMENT 3 (6.25 kHz each, aggregate to 25 kHz)

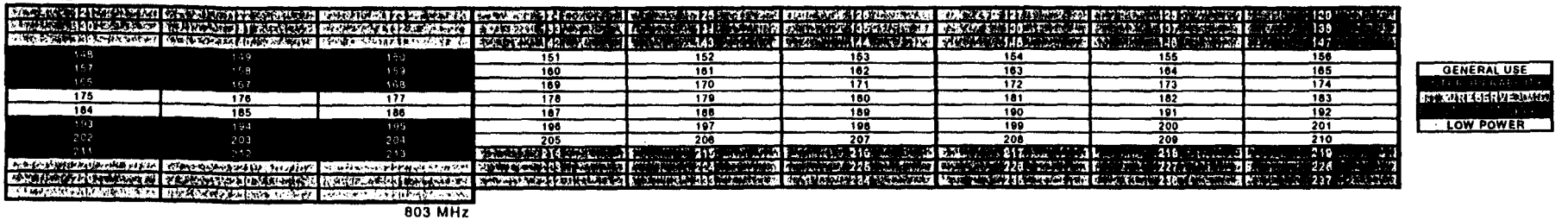
794 MHz



797 MHz

120 WIDEBAND MOBILE CHANNELS - SEGMENT 2 (50 kHz each, aggregate to 150 kHz)

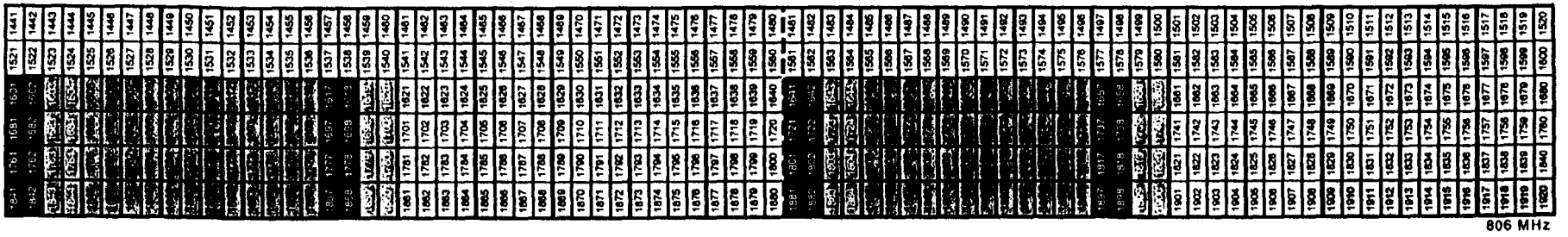
797 MHz




803 MHz

480 NARROWBAND MOBILE CHANNELS - SEGMENT 4 (6.25 kHz each, aggregate to 25 kHz)

803 MHz



806 MHz

**NARROWBAND CHANNELS:**

Two may be combined provided that the lower channel number is odd (e.g., 1, 3, 5)

Four may be combined provided that the lower channel number is 1 + 4n, n = 0 to 479 (e.g., 1, 5,... 1917)

Narrowband channels must maintain a data throughput efficiency of not less than 4.8 kbps for each 6.25 kHz of bandwidth.

**WIDEBAND CHANNELS:**

Two may be combined provided that the lower channel number is 1 + 3n or 2 + 3n, n = 0 to 79 (e.g., 1, 2, 4, 5,... 238, 239)

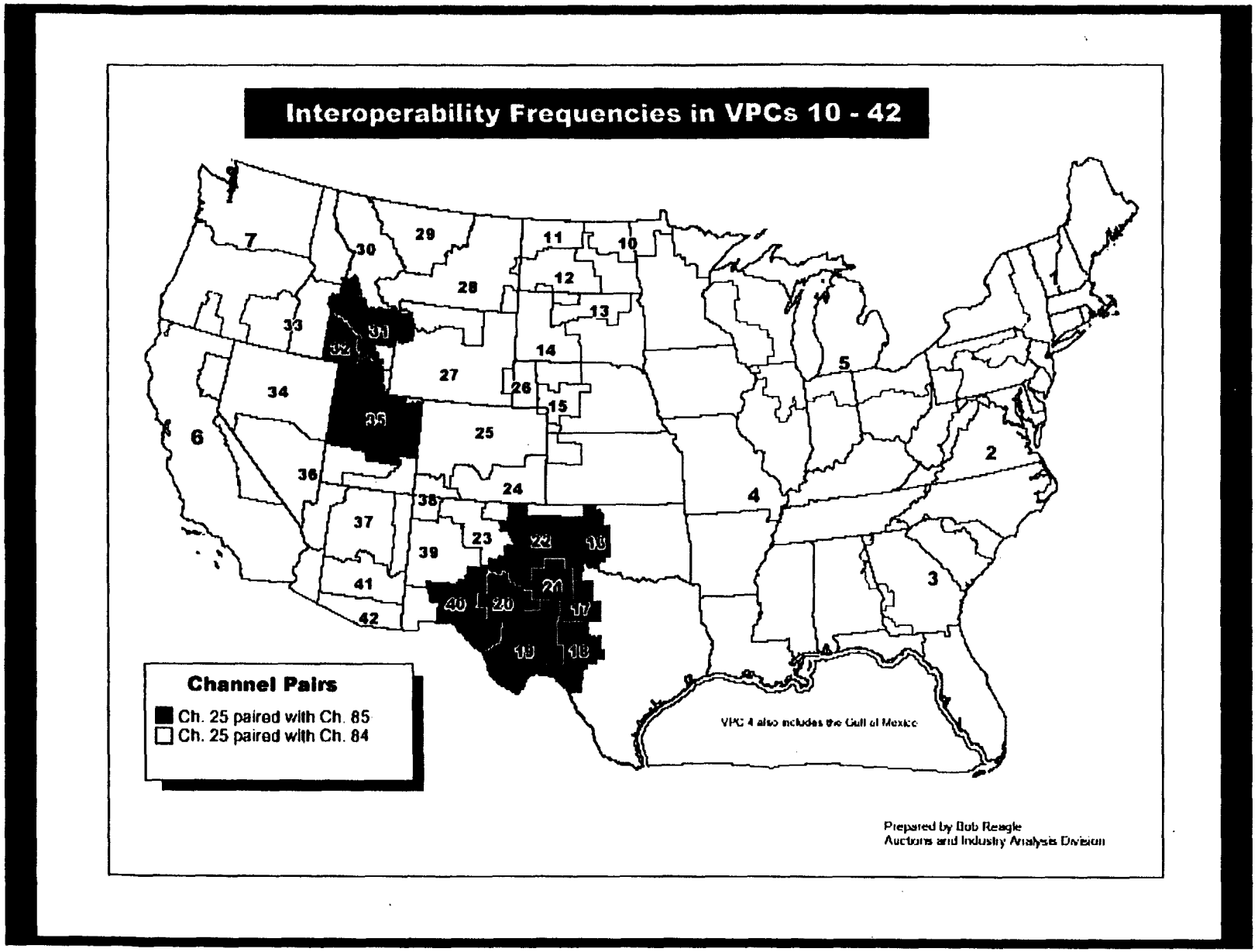
Three may be combined provided that the lower channel number is 1 + 3n, n = 0 to 79 (e.g., 1, 4,... 238)

Wideband channels must maintain a data throughput efficiency of not less than 384 kbps for each 150 kHz of bandwidth.

Channel numbers for combined channels are designated by the lowest and highest channel numbers separated by a hyphen, e.g., "1-2" and 1-3".

## APPENDIX H

# INTEROPERABILITY FREQUENCIES IN THE INLAND VPCS (NOS. 10-42)


Interoperability Frequencies in VPCs 10 - 42
Channel Pairs
Ch. 25 paired with Ch. 85
Ch. 25 paired with Ch. 84
VPC 4 also includes the Gulf of Mexico
Prepared by Bob Reagle
Auctions and Industry Analysis Division